Math 212
Quiz 16

W 05 Oct 2016

Your name: _____

Exercise

(2 pt) Our goal is to find the minimum and maximum of the function $f : \mathbf{R}^2 \to \mathbf{R}$ given by

$$f(x, y) = 1 - x + y$$

among the points (x, y) that lie on the unit circle $x^2 + y^2 = 1$.

(a) (1 pt) Write the Lagrangian (a.k.a. auxiliary function) L associated with this optimization problem. *Hint:* Identify the constraint function $g = 0$. L is a function of three variables.

(b) (1 pt) Write the first-order condition(s) that you could solve to find the minimum and maximum. *Hint:* You can write as few as four symbols.